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January 2001

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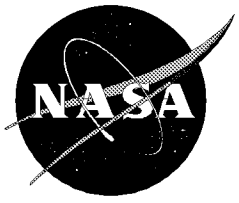

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Introduction

Several thousand inventions result each year from the aeronautical and space research supported by the National Aeronautics and Space Administration. The inventions having important use in government programs or significant commercial potential are usually patented by NASA. These inventions cover practically all fields of technology and include many that have useful and valuable commercial application.

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The *NASA Patent Abstracts Bibliography* is a semiannual NASA publication containing comprehensive abstracts of NASA owned inventions covered by U.S. patents. The citations included in the bibliography arrangement of citations were originally published in NASA's *Scientific and Technical Aerospace Reports (STAR)* and cover *STAR* announcements made since May 1969.

The citations published in this issue cover the period July 2000 through December 2000. This issue includes 10 major subject divisions separated into 76 specific categories and one general category/division. (See Table of Contents for the scope note of each category, under which are grouped appropriate NASA inventions.) This scheme was devised in 1975 and revised in 1987 in lieu of the 34 category divisions which were utilized in supplements (01) through (06) covering *STAR* abstracts from May 1969 through January 1974. Each entry consists of a *STAR* citation accompanied by an abstract and, when appropriate, a key illustration taken from the patent or application for patent. Entries are arranged by subject category in ascending order.

A typical citation and abstract presents the various data elements included in most records cited. This appears after the table of contents.

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12 Astronautics (General) N.A.

For extraterrestrial exploration, see *91 Lunar and Planetary Exploration.*

13 Astrodynamics N.A.

Includes powered and free-flight trajectories; and orbital and launching dynamics.

14 Ground Support Systems and Facilities (Space) N.A.

Includes launch complexes, research and production facilities; ground support equipment, e.g., mobile transporters; and simulators. *For related information, see also 09 Research and Support Facilities (Air).*

15 Launch Vehicles and Space Vehicles N.A.

Includes boosters; operating problems of launch/space vehicle systems; and reusable vehicles. For related information, see also *20 Spacecraft Propulsion and Power.*

16 Space Transportation N.A.

Includes passenger and cargo space transportation, e.g., shuttle operations; and space rescue techniques. For related information, see also *03 Air Transportation and Safety* and *18 Spacecraft Design, Testing and Performance.* For space suits, see *54 Man/System Technology and Life Support.*

17 Space Communications, Spacecraft Communications, Command and Tracking N.A.

Includes telemetry; space communication networks; astronavigation and guidance; and radio blackout. For related information, see also *04 Aircraft Communications and Navigation* and *32 Communications and Radar.*

18 Spacecraft Design, Testing and Performance N.A.

Includes satellites; space platforms; space stations; spacecraft systems and components such as thermal and environmental controls; and attitude controls. For life support systems, see *54 Man/System Technology and Life Support.* For related information, see also *05 Aircraft Design, Testing and Performance, 39 Structural Mechanics, and 16 Space Transportation.*

19 Spacecraft Instrumentation N.A.

For related information, see also *06 Aircraft Instrumentation* and *35 Instrumentation and Photography.*

20 Spacecraft Propulsion and Power N.A.

Includes main propulsion systems and components, e.g., rocket engines; and spacecraft auxiliary power sources. For related information, see also *07 Aircraft Propulsion and Power, 28 Propellants and Fuels, 44 Energy Production and Conversion,* and *15 Launch Vehicles and Space Vehicles.*

Indexes

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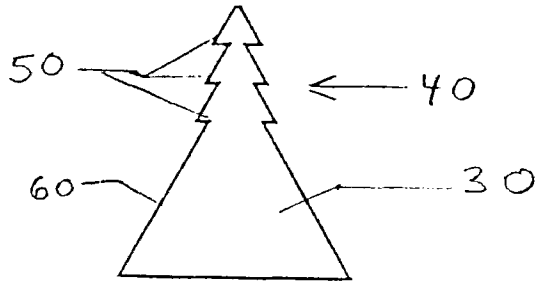
Typical Report Citation and Abstract

❶ 19970011223 NASA Langley Research Center, Hampton, VA USA
❷ Serrated-Planform Lifting-Surfaces
❸ McGrath, Brian E., Inventor, NASA Langley Research Center, USA; Wood, Richard M., Inventor, NASA Langley Research
❹ Center, USA; Oct. 22, 1996; 38p; In English
❺ Patent Info.: Filed 22 Oct. 1996; NASA-Case-LAR-15295-1; US-Patent-Appl-SN-734820
❻ Report No.(s): NAS 1.71:LAR-15295-1; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche
❼ A set of serrated-planform lifting surfaces is provided which produces unexpectedly high lift coefficients at moderate to high angles-of-attack. Each serration, or tooth, is designed to shed a vortex. The interaction of the vortices greatly enhances the lifting capability over an extremely large operating range. Variations of the invention use serrated-planform lifting surfaces in planes different than that of a primary lifting surface. In an alternate embodiment, the individual teeth are controllably retractable and deployable to provide for active control of the vortex system and hence lift coefficient. Differential lift on multiple serrated-planform lifting surfaces provides an means for vehicle control. The important aerodynamic advantages of the serrated-planform lifting surfaces are not limited to aircraft applications but can be used to establish desirable performance characteristics for missiles, land vehicles, and/or watercraft.
❽ NASA
❾ *Angle of Attack; Lift; Vortex Shedding; Active Control; Lifting Bodies*

❿



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JANUARY 2001

07
AIRCRAFT PROPULSION AND POWER

Includes prime propulsion systems and systems components, e.g., gas turbine engines and compressors; and onboard auxiliary power plants for aircraft. For related information see also 20 Spacecraft Propulsion and Power, 28 Propellants and Fuels, and 44 Energy Production and Conversion.

20000090563 NASA Langley Research Center, Hampton, VA USA

Undulated Nozzle for Enhanced Exit Area Mixing

Seiner, John M., Inventor, NASA Langley Research Center, USA; Gilinsky, Mikhail M., Inventor, NASA Langley Research Center, USA; Jul. 04, 2000; 20p; In English; Continuation of US-Patent-Appl-SN-850572, filed 2 May 1997 and provisional US-Patent-Appl-SN-020966, filed 12 Jun . 1996

Patent Info.: Filed 2 May 1997; NASA-Case-LAR-15215-1; US-Patent-6,082,635; US-Patent-Appl-SN-848851; US-Patent-Appl-SN-850572; US-Patent-Appl-SN-020966; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

A nozzle having an undulating surface for enhancing the mixing of a primary flow with a secondary flow or ambient air, without requiring an ejector. The nozzle includes a nozzle structure and design for introducing counter-rotating vorticity into the primary flow either through (i) internal surface corrugations where an axisymmetric line through each corrugation is coincident with an axisymmetric line through the center of the flow passageway or (ii) through one or more sets of alternating convexities and cavities in the internal surface of the nozzle where an axisymmetric line through each convexity and cavity is coincident with an axisymmetric line through the center of the flow passageway, and where the convexities contract from the entrance end towards the exit end. Exit area mixing is also enhanced by one or more chevrons attached to the exit edge of the nozzle. The nozzle is ideally suited for application as a jet engine nozzle. When used as a jet engine nozzle, noise suppression with simultaneous thrust augmentation/minimal thrust loss is achieved.

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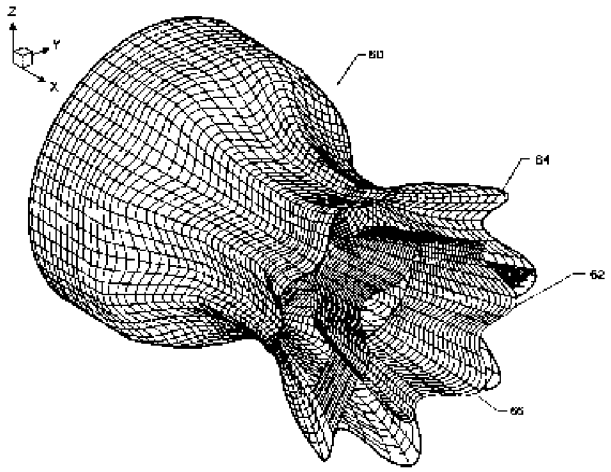
Engine Noise; Jet Engines; Nozzle Design; Nozzle Geometry



20000091028 NASA Langley Research Center, Hampton, VA USA

Jet Nozzle Having Centerbody for Enhanced Exit Area Mixing

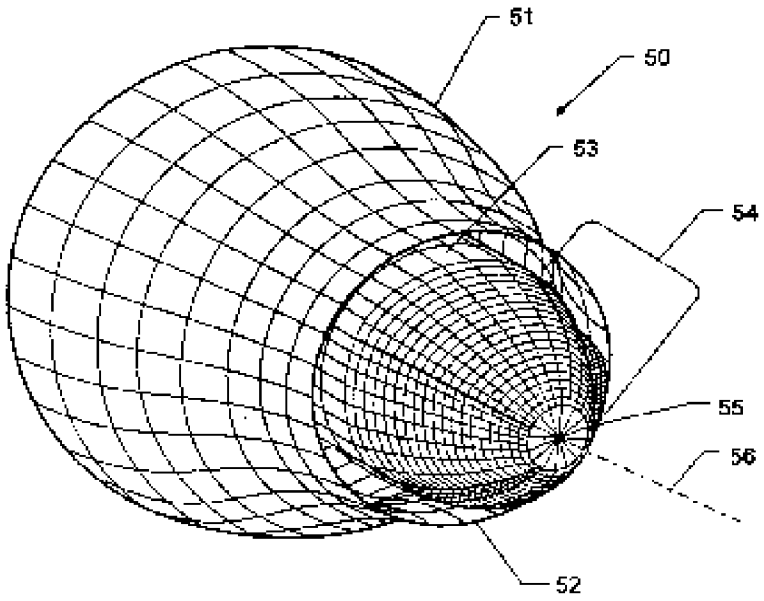
Seiner, John M., Inventor, NASA Langley Research Center, USA; Gilinsky, Mikhail M., Inventor, NASA Langley Research Center, USA; Jul. 20, 1999; 10p; In English; Provisional US-Patent-Appl-SN-016741, filed 2 May 1996

Patent Info.: Filed 2 May 1997; NASA-Case-LAR-15518-1; US-Patent-5,924,632; US-Patent-Appl-SN-850572; US-Patent-Appl-SN-016741; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

A nozzle arrangement includes a nozzle and a centerbody. The longitudinal axis of the centerbody is coaxially aligned with the nozzle. The centerbody has a free end portion shaped to create vortices in exhaust exiting the exit area. The vortices enhance mixing action in the exhaust and reduce exhaust noise while augmenting thrust.

Official Gazette of the U.S. Patent and Trademark Office

Jet Engines; Exhaust Nozzles; Fuel Injection; Patents; Inventions



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CHEMISTRY AND MATERIALS (GENERAL)

20000091023 NASA Lewis Research Center, Cleveland, OH USA

Aromatic Diamines and Polyimides Based on 4,4'-Bis-(4-Aminophenoxy)-2,2' or 2,2',6,6'- Substituted Biphenyl

Chuang, Chun-Hua K., Inventor, NASA Lewis Research Center, USA; May 30, 2000; 9p; In English; Division of US-Patent-Appl-SN-226633, filed 24 Dec. 1998 which is a division of US-Patent-Appl-SN-012173, filed 23 Jan. 1998

Patent Info.: Filed 23 Nov. 1999; NASA-Case-LEW-16638-1; US-Patent-6,069,278; US-Patent-Appl-SN-451812; US-Patent-Appl-SN-226633; US-Patent-Appl-SN-012173; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

This invention relates the novel diamines, the polyimide oligomers and the polyimides derived therefrom and to the method of preparing the diamines, oligomers and the polyimides. The thermoplastic polyimides derived from the aromatic diamines of this invention are characterized as having a high glass transition temperature, good mechanical properties and improved processability in the manufacture of adhesives, electronic and composite materials for use in the automotive and aerospace industry. The distinction of the novel aromatic diamines of this invention is the 2,2',6,6'-substituted biphenyl radicals which exhibit noncopla-

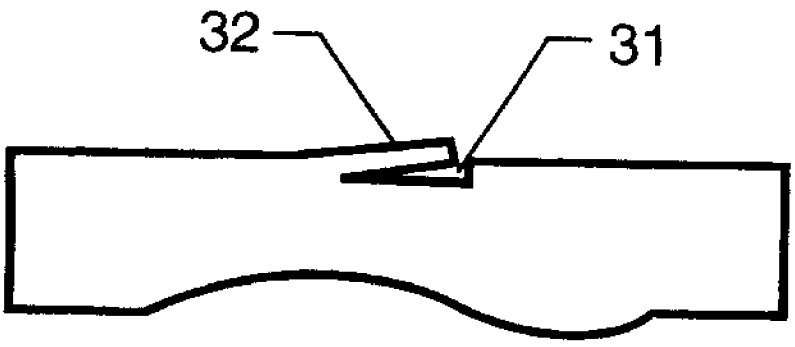
nar conformation that enhances the solubility of the diamine as well as the processability of the polyimides, while retaining a relatively high glass transition temperature and improved mechanical properties at useful temperature ranges.
Official Gazette of the U.S. Patent and Trademark Office
Diamines; Polyimides; Oligomers; Patents; Inventions

24
COMPOSITE MATERIALS

Includes physical, chemical, and mechanical properties of laminates and other composite materials. For ceramic materials see 27 Nonmetallic Materials.

20000090561 NASA Langley Research Center, Hampton, VA USA
Carbon Fiber Reinforced Carbon Composite Rotary Valve for an Internal Combustion Engine
Northam, G.Burton, Inventor, NASA Langley Research Center, USA; Ransone, Philip O., Inventor, NASA Langley Research Center, USA; Rivers, H. Kevin, Inventor, NASA Langley Research Center, USA; Aug. 08, 2000; 12p; In English; Division of US-Patent-Appl-SN-812826, filed 6 Mar. 1997
Patent Info.: Filed 27 May 1999; NASA-Case-LAR-15498-1; US-Patent-6,098,579; US-Patent-Appl-SN-321021; US-Patent-Appl-SN-812826; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

Carbon fiber reinforced carbon composite rotary sleeve, and disc valves for internal combustion engines and the like are disclosed. The valves are formed from knitted or braided or wrap-locked carbon fiber shapes. Also disclosed are valves fabricated from woven carbon fibers and from molded carbon matrix material. The valves of the present invention with their very low coefficient of thermal expansion and excellent thermal and self-lubrication properties do not present the sealing and lubrication problems that have prevented rotary sleeve and disc valves from operating efficiently and reliably in the past. Also disclosed are a sealing tang to further improve sealing capabilities and anti-oxidation treatments.
Author
Carbon Fibers; Carbon-Carbon Composites; Fiber Composites; Matrix Materials; Valves



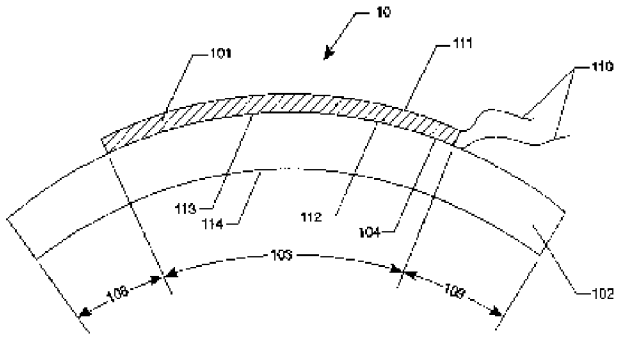
20000091026 NASA Langley Research Center, Hampton, VA USA
Advanced Layered Composite Polylaminate Electroactive Actuator and Sensor
Fox, Robert L., Inventor, NASA Langley Research Center, USA; Hellbaum, Richard F., Inventor, NASA Langley Research Center, USA; Copeland, Benjamin M., Jr., Inventor, NASA Langley Research Center, USA; Bryant, Robert G., Inventor, NASA Langley Research Center, USA; May 09, 2000; 14p; In English
Patent Info.: Filed 25 Jul. 1997; NASA-Case-LAR-15539-1; US-Patent-6,060,811; US-Patent-Appl-SN-910463; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

The present invention relates to the mounting of pre-stressed electroactive material in such a manner that large displacement actuators or sensors result. The invention comprises mounting the pre-stressed electroactive material to a support layer. This combination of a pre-stressed electroactive material and support layer may in turn be attached to a mounting surface. The pre-stressed

electroactive material may be a ferroelectric, pyroelectric, piezoelectric, or magnetostrictive material. The size, stiffness, mass, and material of the support layer is selected to result in the electroactive device having dynamic response properties, environmental capability characteristics, and the required resilience optimized for a given application. The capacity to connect the support layer to a surface expands the arenas in which the prestressed electroactive device may be used. Application for which the invention may be used include actuators, sensors, or as a component in a pumps, switches, relays, pressure transducers and acoustic devices.

Author

Composite Materials; Laminates; Actuators; Pressure Sensors; Audio Equipment; Pumps; Switches; Patents; Inventions



26
METALS AND METALLIC MATERIALS

20000090553 NASA Lewis Research Center, Cleveland, OH USA

Substrate With Low Secondary Emissions

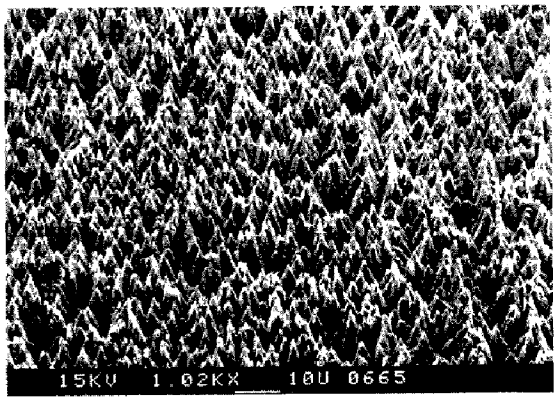
Jensen, Kenneth A., Inventor, NASA Lewis Research Center, USA; Curren, Arthur N., Inventor, NASA Lewis Research Center, USA; Roman, Robert F., Inventor, NASA Lewis Research Center, USA; Jun. 06, 2000; 8p; In English; Division of abandoned US-Patent-Appl-SN-331392, filed 26 Oct. 1994

Patent Info.: Filed 24 Jan. 1996; NASA-Case-LEW-15898-2; US-Patent-6,071,595; US-Patent-Appl-SN-605296; US-Patent-Appl-SN-331392; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

The present invention is directed to a method and apparatus for producing a highly -textured surface on a copper substrate -with only extremely small amounts of texture-inducing seeding or masking material. The texture-inducing seeding material is delivered to the copper substrate electrically switching the seeding material in and out of a circuit loop.

Official Gazette of the U.S. Patent and Trademark Office

Procedures; Copper; Substrates; Textures



20000090562 NASA Lewis Research Center, Cleveland, OH USA

Process for Producing Metal Compounds From Graphite Oxide

Hung, Ching-Cheh, Inventor, NASA Lewis Research Center, USA; Aug. 15, 2000; 6p; In English; Division of US-Patent-Appl-SN-833107, filed 4 Apr. 1997

Patent Info.: Filed 5 Nov. 1998; NASA-Case-LEW-16342-3; US-Patent-6,103,210; US-Patent-Appl-SN-186690; US-Patent-Appl-SN-833107; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

A process for providing elemental metals or metal oxides distributed on a carbon substrate or self-supported utilizing graphite oxide as a precursor. The graphite oxide is exposed to one or more metal chlorides to form an intermediary product comprising carbon, metal, chloride, and oxygen. This intermediary product can be fiber processed by direct exposure to carbonate solutions to form a second intermediary product comprising carbon. metal carbonate. and oxygen. Either intermediary product may be further processed: a) in air to produce metal oxide b) in an inert environment to produce metal oxide on carbon substrate; c) in a reducing environment to produce elemental metal distributed on carbon substrate. The product generally takes the shape of the carbon precursor.

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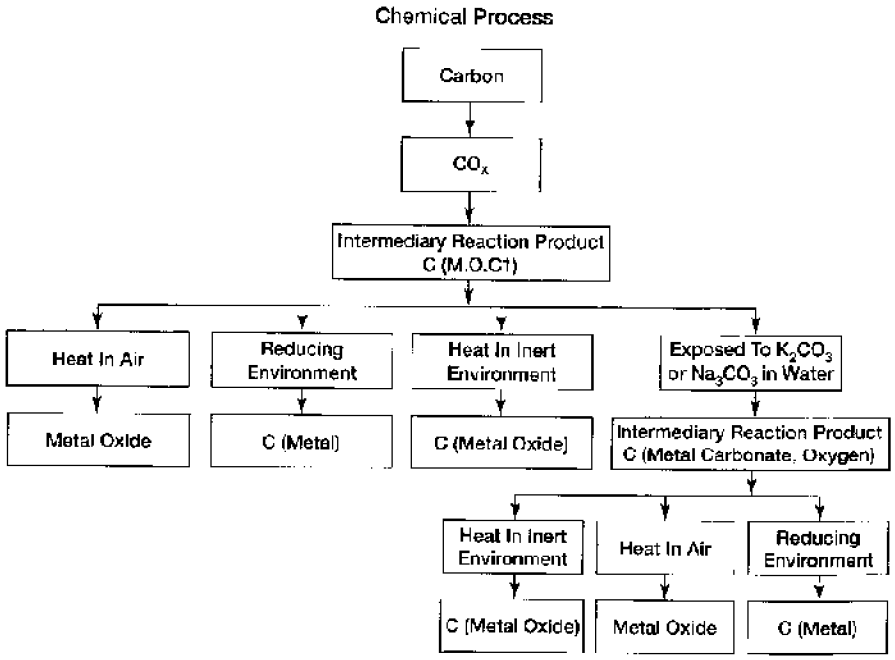
Graphite; Metal Oxides; Substrates; Carbon Compounds; Oxygen Compounds



27
NONMETALLIC MATERIALS

Includes physical, chemical, and mechanical properties of plastics, elastomers, lubricants, polymers, textiles, adhesives, and ceramic materials. For composite materials see 24 Composite Materials.

20000085975 NASA Lewis Research Center, Cleveland, OH USA

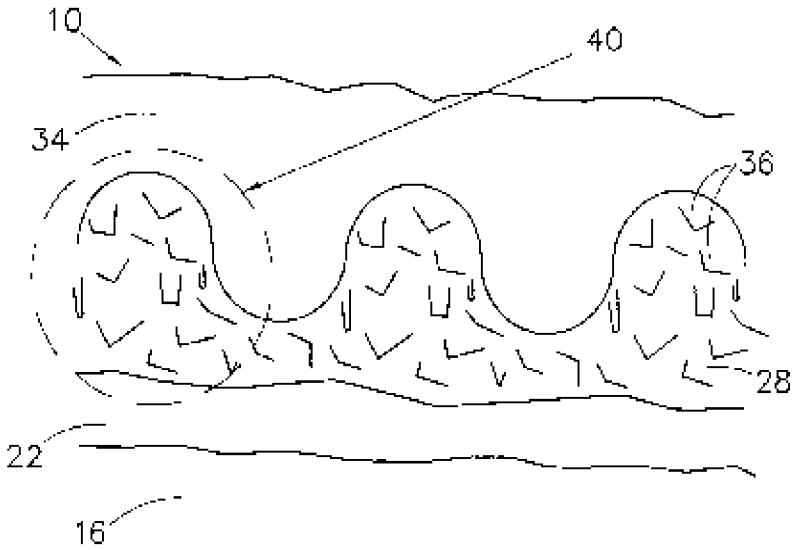
Method of Producing Controlled Thermal Expansion Coat for Thermal Barrier Coatings

Brindley, William J., Inventor, NASA Lewis Research Center, USA; Miller, Robert A., Inventor, NASA Lewis Research Center, USA; Aikin, Beverly J. M., Inventor, NASA Lewis Research Center, USA; Jul. 25, 2000; 6p; In English; Division of US-Patent-Appl-SN-960309, filed 29 Oct. 1997

Patent Info.: Filed 15 Oct. 1998; NASA-Case-LEW-16390-2; US-Patent-6,093,454; US-Patent-Appl-SN-178062; US-Patent-Appl-SN-960309; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

An improved thermal barrier coating and method for producing and applying such is disclosed herein. The thermal barrier coatings includes a high temperature substrate, a first bond coat layer applied to the substrate of MCrAlX and a second bond coat

layer of MCrAlX with particles of a particulate dispersed throughout the MCrAlX and the preferred particulate is Al2O3. The particles of the particulate dispersed throughout the second bond coat layer preferably have a diameter of less then the height of the peaks of the second bond coat layer or a diameter of less than 5 micron. The method of producing the second bond coat layer may either include the steps of mechanical alloying of particles throughout the second bond coat layer, attrition milling the particles of the particulate throughout the second bond coat layer, or using electrophoresis to disperse the particles throughout the second bond coat layer. In the preferred embodiment of the invention the first bond coat layer is applied to the substrate. and then the second bond coat layer is thermally sprayed onto the first bond coat layer. Further, in a preferred embodiment of the invention a ceramic insulating layer covers the second bond coat layer.
Official Gazette of the U.S. Patent and Trademark Office
High Temperature; Particulates; Substrates; Thermal Control Coatings; Temperature Control; Thermal Insulation



20000085977 NASA Johnson Space Center, Houston, TX USA
Cell-Culture Reactor Having a Porous Organic Polymer Membrane
Koontz, Steven L., Inventor, NASA Johnson Space Center, USA; Jun. 13, 2000; 14p; In English; Div. of US-Patent-Appl-SN-254361, filed 3 Jun. 1994; US-Patent-Appl-SN-894505, filed 2 Jun. 1992; US-Patent-Appl-SN-429739, filed 31 Oct. 1989 and continuation-in-part of US-Patent-Appl-SN-857901, filed 26 Mar. 1992; US-Patent-Appl-SN-997265
Patent Info.: Filed 9 Jul. 1997; NASA-Case-MSC-22419-4; US-Patent-6,074,871; US-Patent-Appl-SN-903278; US-Patent-Appl-SN-254361; US-Patent-Appl-SN-857901; US-Patent-Appl-SN-997265; US-Patent-Appl-SN-894505; US-Patent-Appl-SN-429739; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

A method for making a biocompatible polymer article using a uniform atomic oxygen treatment is disclosed. The substrate may be subsequently optionally grated with a compatibilizing compound. Compatibilizing compounds may include proteins, phosphory1choline groups, platelet adhesion preventing polymers, albumin adhesion promoters, and the like. The compatibilized substrate may also have a living cell layer adhered thereto. The atomic oxygen is preferably produced by a flowing afterglow microwave discharge, wherein the substrate resides in a sidearm out of the plasma. Also, methods for culturing cells for various purposes using the various membranes are disclosed as well. Also disclosed are porous organic polymers having a distributed pore

chemistry (DPC) comprising hydrophilic and hydrophobic regions, and a method for making the DPC by exposing the polymer to atomic oxygen wherein the rate of hydrophilization is greater than the rate of mass loss.
Official Gazette of the U.S. Patent and Trademark Office
Culture Techniques; Membranes; Oxygen Atoms; Substrates; Biopolymers

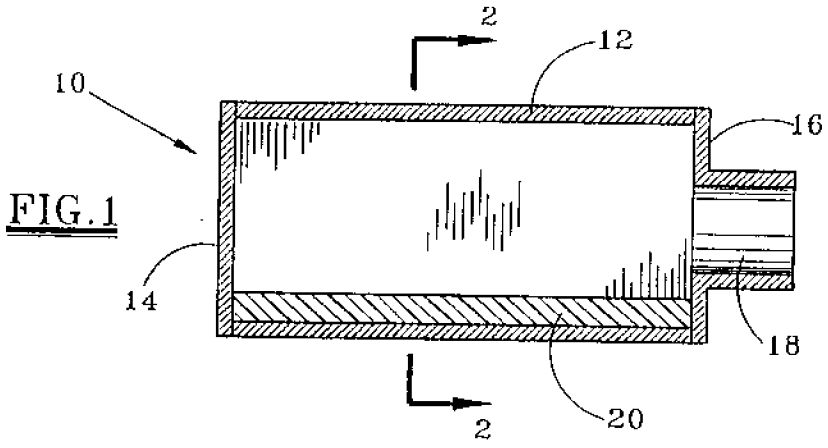
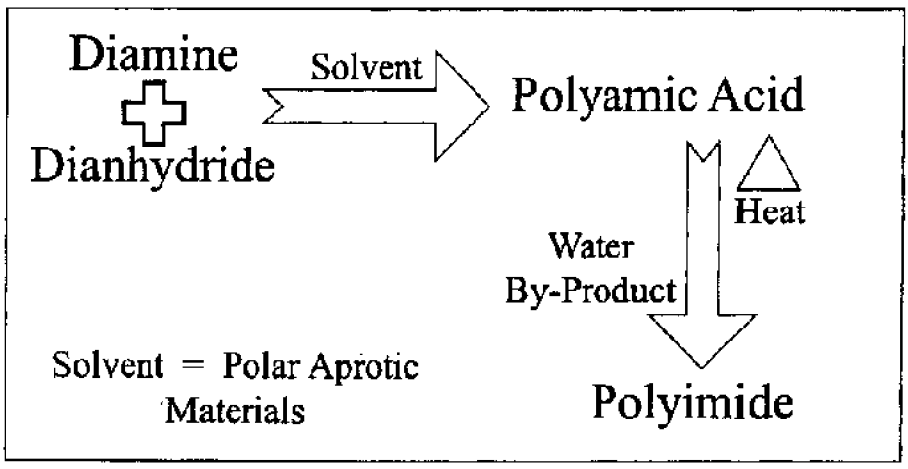


FIG. 1

20000091031 NASA Langley Research Center, Hampton, VA USA
Hollow Polyimide Microspheres
Weiser, Erik S., Inventor, NASA Langley Research Center, USA; St.Clair, Terry L., Inventor, NASA Langley Research Center, USA; Echigo, Yoshiaki, Inventor, NASA Langley Research Center, USA; Kaneshiro, Hisayasu, Inventor, NASA Langley Research Center, USA; Jul. 04, 2000; 8p; In English; Division of US-Patent-Appl-SN-316865, filed 21 May 1999
Patent Info.: Filed 10 Sep. 1999; NASA-Case-LAR-15831-1; US-Patent-6,084,000; US-Patent-Appl-SN-394534; US-Patent-Appl-SN-316865; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

A shaped article composed of an aromatic polyimide has a hollow, essentially spherical structure and a particle size of about 100 to about 1500 microns a density of about 1 to about 6 pounds/cubic ft and a volume change of 1 to about 20 percent by a pressure treatment of 30 psi for 10 minutes at room temperature. A syntactic foam, made of a multiplicity of the shaped articles which are bonded together by a matrix resin to form an integral composite structure, has a density of about 3 to about 30 pounds/cubic ft and a compression strength 2 of about 100 to about 1400 pounds/sq in.
Official Gazette of the U.S. Patent and Trademark Office
Polyimides; Polyimide Resins; Spherical Shells; Patents; Patent Applications; Inventions



32
COMMUNICATIONS AND RADAR

Includes radar; land and global communications; communications theory; and optical communications. For related information see also 04 Aircraft Communications and Navigation and 17 Space Communications, Spacecraft Communications, Command and Tracking. For search and rescue see 03 Air Transportation and Safety, and 16 Space Transportation.

20000085974 NASA Johnson Space Center, Houston, TX USA

Object Locating System

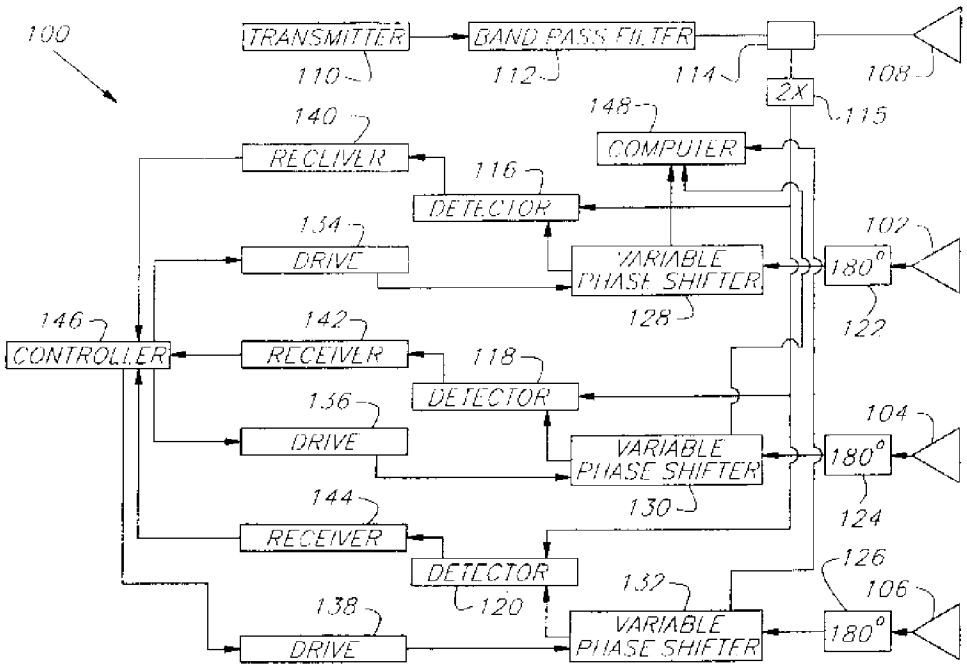
Arndt, G. Dickey, Inventor, NASA Johnson Space Center, USA; Carl, James R., Inventor, NASA Johnson Space Center, USA; Aug. 01, 2000; 18p; In English

Patent Info.: Filed 29 Sep. 1997; NASA-Case-MSC-22743-1; US-Patent-6,097,189; US-Patent-Appl-SN-944040; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

A portable system is provided that is operational for determining, with three dimensional resolution, the position of a buried object or approximately positioned object that may move in space or air or gas. The system has a plurality of receivers for detecting the signal front a target antenna and measuring the phase thereof with respect to a reference signal. The relative permittivity and conductivity of the medium in which the object is located is used along with the measured phase signal to determine a distance between the object and each of the plurality of receivers. Knowing these distances. an iteration technique is provided for solving equations simultaneously to provide position coordinates. The system may also be used for tracking movement of an object within close range of the system by sampling and recording subsequent position of the object. A dipole target antenna. when positioned adjacent to a buried object, may be energized using a separate transmitter which couples energy to the target antenna through the medium. The target antenna then preferably resonates at a different frequency, such as a second harmonic of the transmitter frequency.

Official Gazette of the U.S. Patent and Trademark Office

Detection; Targets



20000091027 NASA Lewis Research Center, Cleveland, OH USA

High Resolution Scanning Reflectarray Antenna

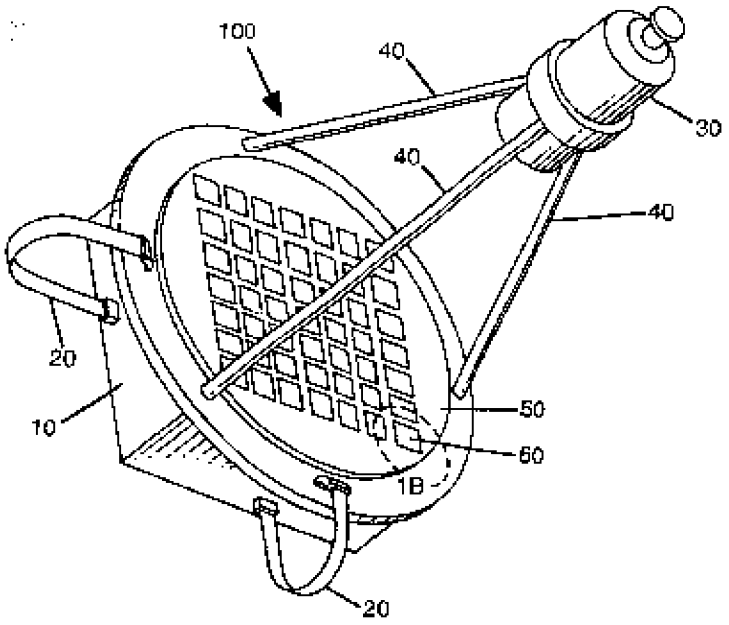
Romanofsky, Robert R., Inventor, NASA Lewis Research Center, USA; Miranda, Felix A., Inventor, NASA Lewis Research Center, USA; Jun. 22, 2000; 12p; In English

Patent Info.: Filed 30 Apr. 1998; NASA-Case-LEW-16398-1; US-Patent-6,081,235; US-Patent-Appl-SN-071450; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

The present invention provides a High Resolution Scanning Reflectarray Antenna (HRSRA) for the purpose of tracking ground terminals and space craft communication applications. The present invention provides an alternative to using gimbaled parabolic dish antennas and direct radiating phased arrays. When compared to a gimbaled parabolic dish, the HRSRA offers the advantages of vibration free steering without incurring appreciable cost or prime power penalties. In addition, it offers full beam steering at a fraction of the cost of direct radiating arrays and is more efficient.

Official Gazette of the U.S. Patent and Trademark Office

High Resolution; Scanning; Reflector Antennas; Antenna Arrays; Patents; Inventions



33
ELECTRONICS AND ELECTRICAL ENGINEERING

Includes test equipment and maintainability; components, e.g., tunnel diodes and transistors; microminiaturization; and integrated circuitry. For related information see also 60 Computer Operations and Hardware and 76 Solid-State Physics.

20000085978 NASA Lewis Research Center, Cleveland, OH USA

Discriminator Stabilized Superconductor/Ferroelectric Thin Film Local Oscillator

Romanofsky, Robert R., Inventor, NASA Lewis Research Center, USA; Miranda, Felix A., Inventor, NASA Lewis Research Center, USA; Jun. 20, 2000; 10p; In English

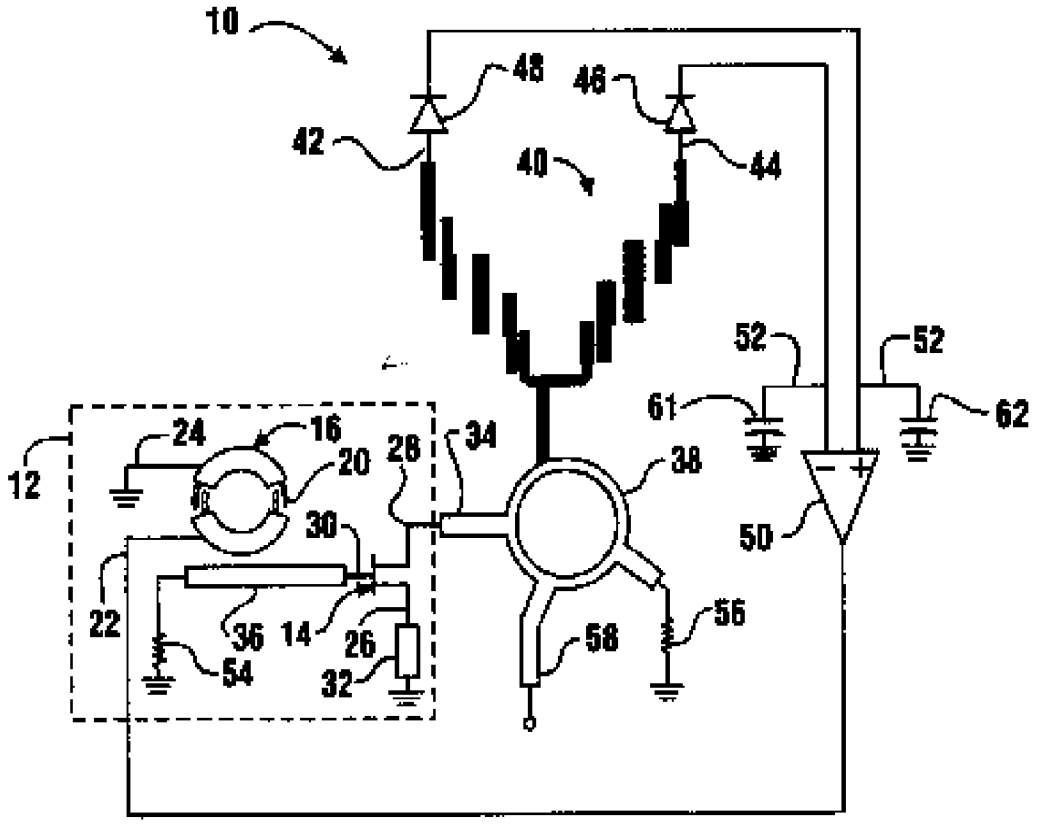
Patent Info.: Filed 14 Aug. 1998; NASA-Case-LEW-16440-1; US-Patent-6,078,223; US-Patent-Appl-SN-134811; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

A tunable local oscillator with a tunable circuit that includes a resonator and a transistor as an active element for oscillation. Tuning of the circuit is achieved with an externally applied dc bias across coupled lines on the resonator. Preferably the resonator is a high temperature superconductor microstrip ring resonator with integral coupled lines formed over a thin film ferroelectric material. A directional coupler samples the output of the oscillator which is fed into a diplexer for determining whether the oscillator is performing at a desired frequency. The high-pass and lowpass outputs of the diplexer are connected to diodes respectively

for inputting the sampled signals into a differential operational amplifier. The amplifier compares the sampled signals and emits an output signal if there is a difference between the resonant and crossover frequencies. Based on the sampled signal, a bias supplied to the ring resonator is either increased or decreased for raising or lowering the resonant frequency by decreasing or increasing, respectively, the dielectric constant of the ferroelectric.

Official Gazette of the U.S. Patent and Trademark Office

Discriminators; Ferroelectricity; Oscillators; Resonators; Superconductors (Materials); Thin Films; Transistors; Tunable Filters



20000091024 NASA Lewis Research Center, Cleveland, OH USA

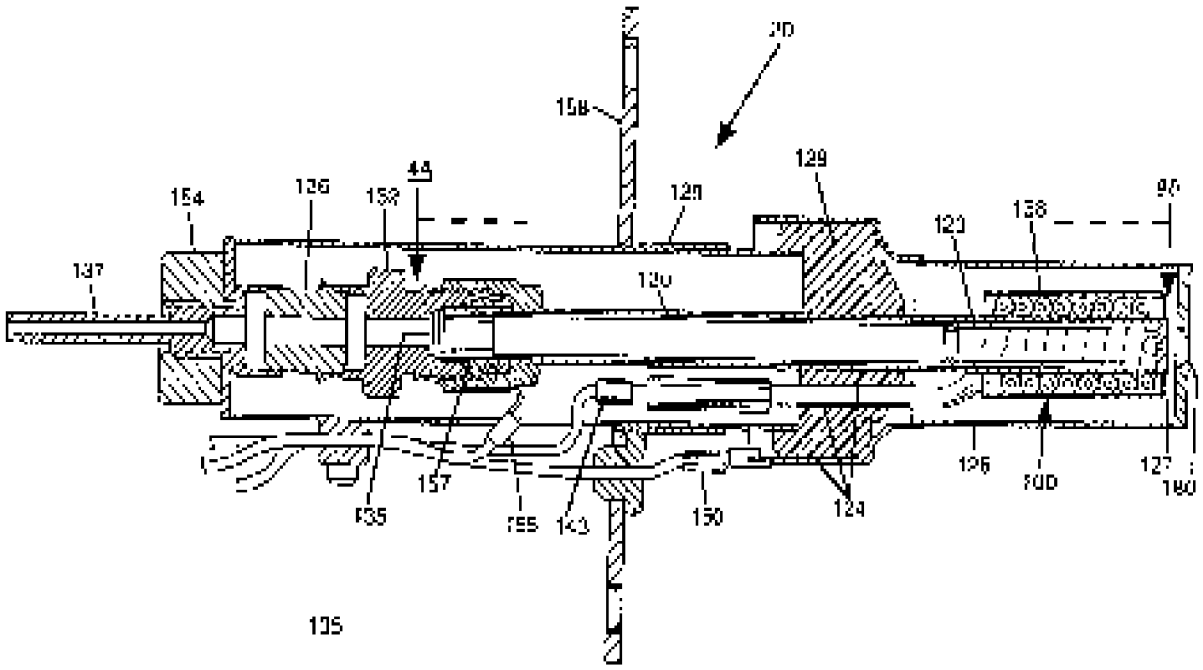
Process for Ignition of Gaseous Electrical Discharge Between Electrodes of a Hollow Cathode Assembly

Patterson, Michael J., Inventor, NASA Lewis Research Center, USA; Verhey, Timothy R. R., Inventor, NASA Lewis Research Center, USA; Soulas, George C., Inventor, NASA Lewis Research Center, USA; May 16, 2000; 17p; In English

Patent Info.: Filed 14 Sep. 1998; NASA-Case-LEW-16056-1; US-Patent-6,064,156; US-Patent-Appl-SN-152407; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

The design and manufacturing processes for Hollow Cathode Assemblies (HCA's) that operate over a broad range of emission currents up to 30 Amperes, at low potentials, with lifetimes in excess of 17,500 hours. The processes include contamination control procedures which cover hollow cathode component cleaning procedures, gas feed system designs and specifications, and hollow cathode activation and operating procedures to thereby produce cathode assemblies that have demonstrated stable and repeatable operating conditions, for both the discharge current and voltage. The HCA of this invention provides lifetimes of greater than 10,000 hours, and expected lifetimes of greater than 17,500 hours, whereas the present state-of-the-art is less than 500 hours at emission currents in excess of 1 Ampere. Stable operation is provided over a large range of operating emission currents, up to a

6:1 ratio, and this HCA can emit electron currents of up to 30 Amperes in magnitude to an external anode that simulates the current drawn to a space plasma, at voltages of less than 20 Volts.
Official Gazette of the U.S. Patent and Trademark Office
Patents; Inventions; Ignition; Gas Discharges; Electric Discharges



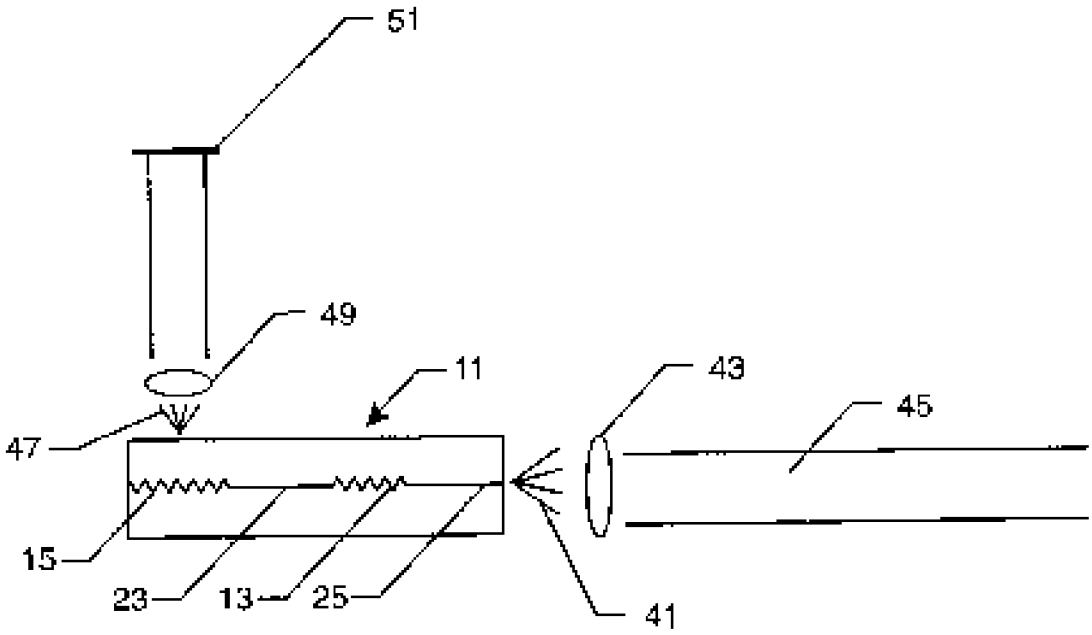
36
LASERS AND MASERS

Includes parametric amplifiers. For related information see also 76 Solid-State Physics.

20000091029 NASA Langley Research Center, Hampton, VA USA
Apparatus For Linewidth Reduction in Distributed Feedback or Distributed Bragg Reflector Semiconductor Lasers Using Vertical Emission
Cook, Anthony L., Inventor, NASA Langley Research Center, USA; Hendricks, Herbert D., Inventor, NASA Langley Research Center, USA; Jun. 13, 2000; 18p; In English; Division of US-Patent-Appl-SN-549347, filed 26 Oct. 1995
Patent Info.: Filed 27 Oct. 1998; NASA-Case-LAR-15258-2; US-Patent-6,075,805; US-Patent-Appl-SN-179731; US-Patent-Appl-SN-549347; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

The linewidth of a distributed feedback semiconductor laser or a distributed Bragg reflector laser having one or more second order gratings is reduced by using an external cavity to couple the vertical emission back into the laser. This method and device prevent disturbance of the main laser beam, provide unobstructed access to laser emission for the formation of the external cavity, and do not require a very narrow heat sink. Any distributed Bragg reflector semiconductor laser or distributed feedback semicon-

ductor laser that can produce a vertical emission through the epitaxial material and through a window in the top metallization can be used. The external cavity can be formed with an optical fiber or with a lens and a mirror or grating.
Official Gazette of the U.S. Patent and Trademark Office
DBR Lasers; Bragg Reflectors; Semiconductor Lasers; Distributed Feedback Lasers; Patents; Inventions



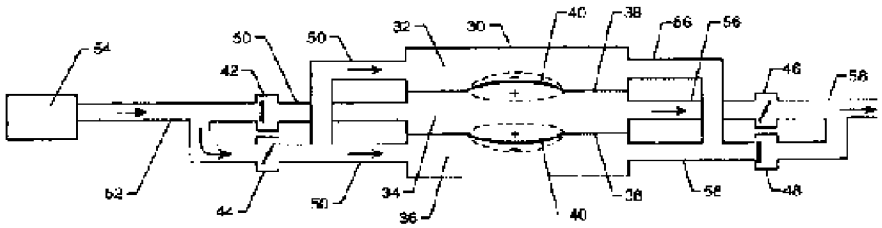
37
MECHANICAL ENGINEERING

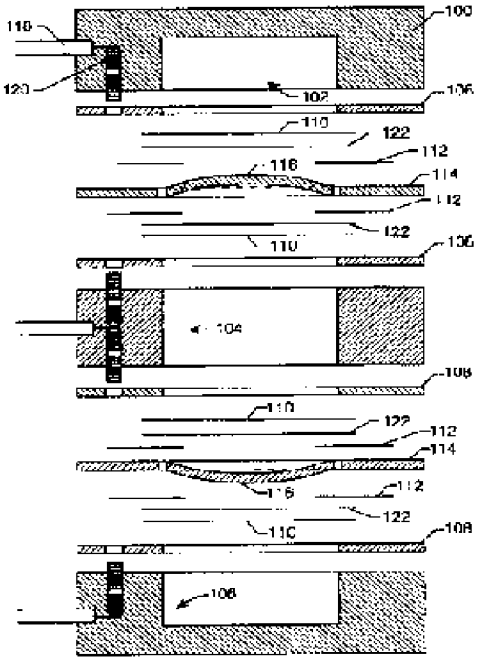
Includes auxiliary systems (nonpower); machine elements and processes; and mechanical equipment.

20000085976 NASA Langley Research Center, Hampton, VA USA
Ferroelectric Pump
Jalink, Antony, Jr., Inventor, NASA Langley Research Center, USA; Hellbaum, Richard F., Inventor, NASA Langley Research Center, USA; Rohrbach, Wayne W., Inventor, NASA Langley Research Center, USA; Jun. 06, 2000; 14p; In English; Provisional of US-Patent-Appl-SN-015969, filed 3 Apr. 1996
Patent Info.: Filed 3 Apr. 1997; NASA-Case-LAR-15065-1; US-Patent-6,071,087; US-Patent-Appl-SN-832246; US-Patent-Appl-SN-015969; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

A ferroelectric pump has one or more variable volume pumping chambers internal to a housing. Each chamber has at least one wall comprising a dome shaped internally prestressed ferroelectric actuator having a curvature and a dome height that varies with an electric voltage applied between an inside and outside surface of the actuator. A pumped medium flows into and out of each pumping chamber in response to displacement of the ferroelectric actuator. The ferroelectric actuator is mounted within each wall and isolates each ferroelectric actuator from the pumped medium, supplies a path for voltage to be applied to each ferroelectric

actuator, and provides for positive containment of each ferroelectric actuator while allowing displacement of the entirety of each ferroelectric actuator in response to the applied voltage.
Official Gazette of the U.S. Patent and Trademark Office
Ferroelectricity; Electromagnetic Pumps; Electric Potential





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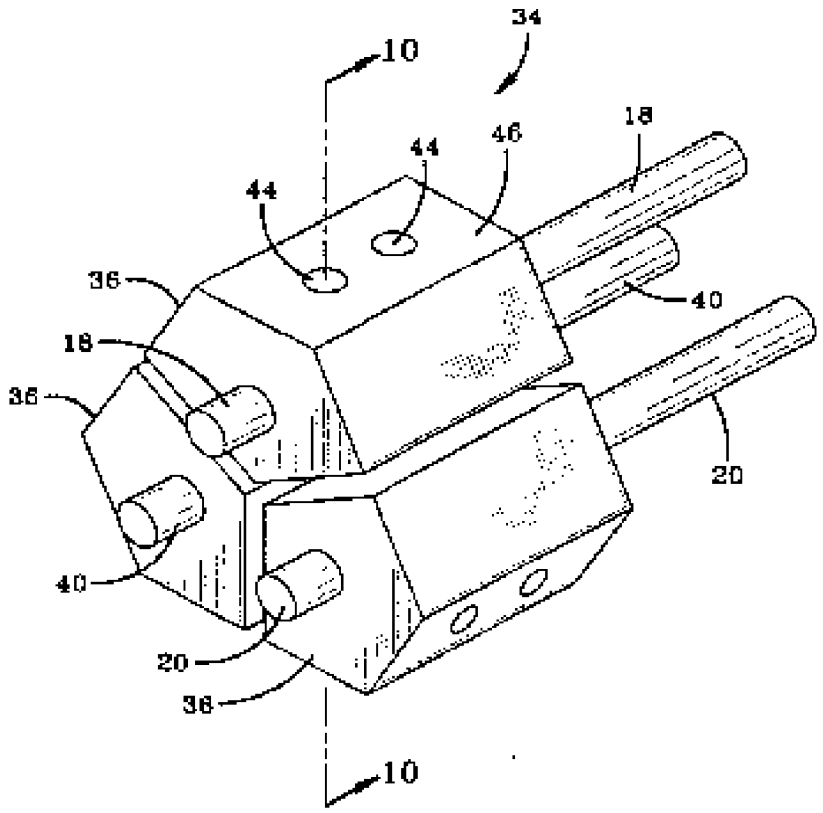
STRUCTURAL MECHANICS

Includes structural element design and weight analysis; fatigue; and thermal stress. For applications see 05 Aircraft Design, Testing and Performance and 18 Spacecraft Design, Testing and Performance.

20000090559 NASA Lewis Research Center, Cleveland, OH USA
Capacitive Extensometer Particularly Suited for Measuring in Vivo Bone Strain
Perusek, Gail P., Inventor, NASA Lewis Research Center, USA; May 09, 2000; 20p; In English
Patent Info.: Filed 8 Oct. 1998; NASA-Case-LEW-16638-1; US-Patent-6,059,784; US-Patent-Appl-SN-179355; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

The present invention provides for in vivo measurements of the principal strain magnitudes and directions, and maximum shear strain that occurs in a material, such as human bone, when it is loaded (or subjected to a load). In one embodiment the inven-

tion includes a capacitive delta extensometer arranged with six sensors in a three piece configuration, with each sensor of each pair spaced apart from each other by 120 degrees.
Official Gazette of the U.S. Patent and Trademark Office
Extensometers; Magnitude; Measure and Integration; Shear Strain



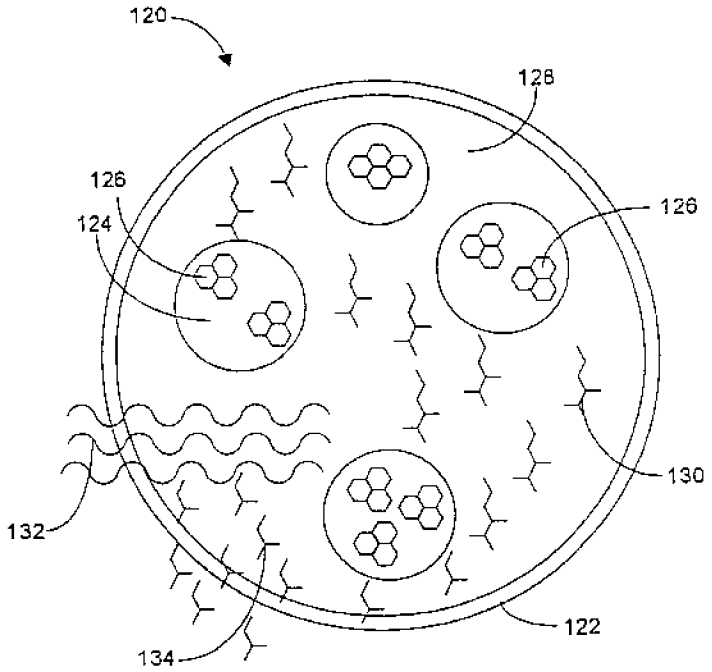
52
AEROSPACE MEDICINE

Includes physiological factors; biological effects of radiation; and effects of weightlessness on man and animals.

20000085973 NASA Johnson Space Center, Houston, TX USA
In Situ Activation of Microcapsules
Morrison, Dennis R., Inventor, NASA Johnson Space Center, USA; Mosier, Benjamin, Inventor, NASA Johnson Space Center, USA; Aug. 08, 2000; 28p; In English; Continuation-in-part of US-Patent-Appl-SN-349169, filed 2 Dec. 1994
Patent Info.: Filed 15 May 1998; NASA-Case-MSC-22866-1; US-Patent-6,099,864; US-Patent-Appl-SN-079741; US-Patent-Appl-SN-349169; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

Disclosed are microcapsules comprising a polymer shell enclosing two or more immiscible liquid phases in which a drug, or a prodrug and a drug activator are partitioned into separate phases. or prevented from diffusing out of the microcapsule by a

liquid phase in which the drug is poorly soluble. Also disclosed are methods of using the microcapsules for in situ activation of drugs where upon exposure to an appropriate energy source the internal phases mix and the drug is activated in situ.
Author
Activation; Drugs; Capsules; Polymers; Pharmacology



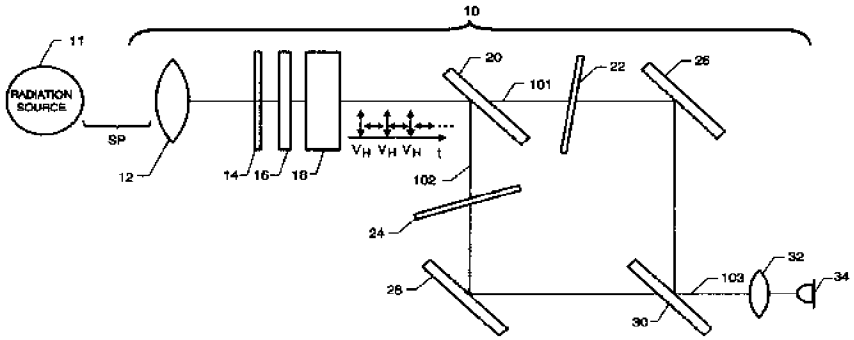
74
OPTICS

Includes light phenomena; and optical devices. For lasers see 36 Lasers and Masers.

20000090560 NASA Langley Research Center, Hampton, VA USA
Optical Path Switching Based Differential Absorption Radiometry for Substance Detection
Sachse, Glen W., Inventor, NASA Langley Research Center, USA; May 02, 2000; 16p; In English; Provisional application of US-Patent-Appl-SN-082355, filed 20 Apr. 1998
Patent Info.: Filed 13 Apr. 1999; NASA-Case-LAR-15818-1; US-Patent-6,057,923; US-Patent-Appl-SN-290954; US-Patent-Appl-SN-082355; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

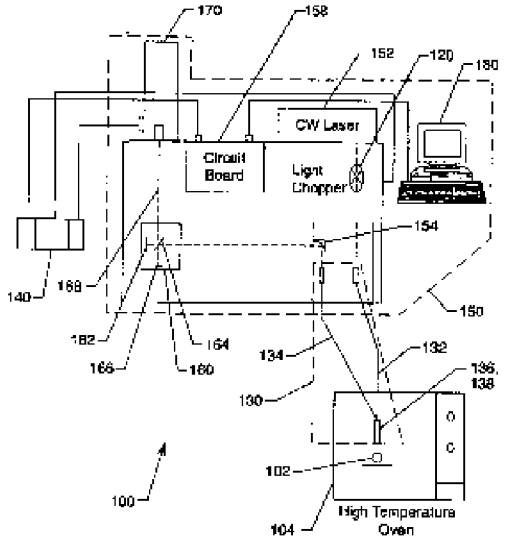
A system and method are provided for detecting one or more substances. An optical path switch divides sample path radiation into a time series of alternating first polarized components and second polarized components. The first polarized components are transmitted along a first optical path and the second polarized components along a second optical path. A first gasless optical filter train filters the first polarized components to isolate at least a first wavelength band thereby generating first filtered radiation. A second gasless optical filter train filters the second polarized components to isolate at least a second wavelength band thereby generating second filtered radiation. The first wavelength band and second wavelength band are unique. Further, spectral absorption of a substance of interest is different at the first wavelength band as compared to the second wavelength band. A beam combiner combines the first and second filtered radiation to form a combined beam of radiation. A detector is disposed to monitor magnitude of at least

a portion of the combined beam alternately at the first wavelength band and the second wavelength band as an indication of the concentration of the substance in the sample path.
Official Gazette of the U.S. Patent and Trademark Office
Optical Paths; Procedures; Switching; Radiometers



20000091025 NASA Langley Research Center, Hampton, VA USA
Modulated Fourier Transform Raman Fiber-Optic Spectroscopy
Jensen, Brian J., Inventor, NASA Langley Research Center, USA; Cooper, John B., Inventor, NASA Langley Research Center, USA; Wise, Kent L., Inventor, NASA Langley Research Center, USA; May 09, 2000; 18p; In English; Provisional application US-Patent-Appl-SN-088697, filed 22 May 1998
Patent Info.: Filed 21 May 1999; NASA-Case-LAR-15645-1-CU; US-Patent-6,061,134; US-Patent-Appl-SN-316176; US-Patent-Appl-SN-088697; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

A modification to a commercial Fourier Transform (FT) Raman spectrometer is presented for the elimination of thermal backgrounds in the FT Raman spectra. The modification involves the use of a mechanical optical chopper to modulate the continuous wave laser, remote collection of the signal via fiber optics, and connection of a dual-phase digital-signal-processor (DSP) lock-in amplifier between the detector and the spectrometer's collection electronics to demodulate and filter the optical signals. The resulting Modulated Fourier Transform Raman Fiber-Optic Spectrometer is capable of completely eliminating thermal backgrounds at temperatures exceeding 300 C.
Official Gazette of the U.S. Patent and Trademark Office
Fourier Transformation; Raman Spectroscopy; Fiber Optics; Spectroscopic Analysis; Spectrometers; Patents; Patent Applications; Inventions



Subject Term Index

Personal Author Index

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The NASA Patent Counsel having cognizance of the invention is determined by the first three letters or prefix of the NASA Case Number assigned to the invention. The addresses of NASA Patent Counsels are listed alongside the NASA Case Number prefix letters in the following table.

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PATENT LICENSING REGULATIONS

NATIONAL AERONAUTICS AND SPACE ADMINITRATION
14 CFR Part 1245
Patents and Other Intellectual Property Rights

AGENCY: National Aeronautics and Space Administration (NASA).

Action: Final rule.

SUMMARY: NASA is amending 14 CFR Part 1245 by removing Subpart 2, "Licensing of NASA Inventions." The Department of Commerce has issued similar regulations which prescribe the terms, conditions, and procedures upon which a federally–owned invention may be licensed. These regulations are codified at 37 CFR Part 404, *"Licensing of Government Owned Inventions."* NASA began granting licenses in accordance with the Department of Commerce regulations on March 13, 1995. All licenses agreements executed prior to this date will operate under the previous regulations.

EFFECTIVE DATE: March 13, 1995.

FOR FURTHER INFORMATION CONTACT:
John G. Mannix, (202) 358–2424.

List of Subjects in 14 CFR Part 1245
Authority delegations (Government agencies), Inventions and patents.

Under the authority, 42 U.S.C. 2473, 14 CFR Part 1245 is amended as follows:

PART 1245 — [AMENDED]

Subpart 2 — [Removed and Reserved]

In 14 CFR Part 1245, Subpart 2 (consisting of SS 1245.200 through 1245.214) is removed and reserved.

Dated: April 24,1995.

Edward A. Frankle,
General Counsel.

[FR Doc. 95 10583 Filed 4–28–95, 8:45 am]

BILLING CODE 7510 01 M

Code of Federal Regulations 37
CFR Part 404
Licensing of Government Owned Inventions

Sec.

Sec. 404.1 Scope of part.

This part prescribes the terms, conditions, and procedures upon which a federally owned invention, other than an invention in the custody of the Tennessee Valley Authority, may be licensed. It supersedes the regulations at 41 CFR Subpart 101–4.1. This part does not affect licenses which (a) were in effect prior to July 1, 1981; (b) may exist at the time of the Government's acquisition of title to the invention, including those resulting from the allocation of rights to inventions made under Government research and development contracts; (c) are the result of an authorized exchange of rights in the settlement of patent disputes; or (d) are otherwise authorized by law or treaty.

Sec. 404.2 Policy and objective.

It is the policy and objective of this subpart to use the patent system to promote the utilization of inventions arising from federally supported research or development.

Sec. 404.3 Definitions.

(a) *'Federally owned invention'* means an invention, plant, or design which is covered by a patent, or patent application in the United States, or a patent, patent application, plant variety protection, or other form of protection, in a foreign country, title to which has been assigned to or otherwise vested in the United States Government.

(b) *'Federal agency'* means an executive department, military department, Government corporation, or independent establishment, except the Tennessee Valley Authority, which has custody of a federally owned invention.

(c) *'Small business firm'* means a small business concern as defined in section 2 of Pub. L. 85–536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration.

(d) *'Practical application'* means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations available to the public on reasonable terms.

(e) *'United States'* means the United States of America, its territories and possessions, the District of Columbia, and the Commonwealth of Puerto Rico.

Sec. 404.4 Authority to grant licenses.

Federally owned inventions shall be made available for licensing as deemed appropriate in the public interest. Federal agencies having custody of federally owned inventions may grant nonexclusive, partially exclusive, or exclusive licenses thereto under this part.

Sec. 404.5 Restrictions and conditions on all licenses granted under this part.

(a) (1) A license may be granted only if the applicant has supplied the Federal agency with a satisfactory plan for development or marketing of the invention, or both, and with information about the applicant's capability to fulfill the plan.

(2) A license granting rights to use or sell under a federally owned invention in the United States shall normally be granted only to a licensee who agrees that any products embodying the invention or produced through the use of the invention will be manufactured substantially in the United States.

(b) Licenses shall contain such terms and conditions as the Federal agency determines are appropriate for the protection of the interests of the Federal Government and the public and are not in conflict with law or this part. The following terms and conditions apply to any license:

(1) The duration of the license shall be for a period specified in the license agreement unless sooner terminated in accordance with this part.

(2) The license may be granted for all or less than all fields of use of the invention or in specified geographical areas, or both.

(3) The license may extend to subsidiaries of the licensee or other parties if provided for in the license but shall be nonassignable without approval of the Federal agency, except to the successor of that part of the licensee's business to which the invention pertains.

(4) The licensee may provide the license the right to grant sublicenses under the license, subject to the approval of the Federal agency. Each sublicense shall make reference to the license, including the rights retained by the Government, and a copy of such sublicense shall be furnished to the Federal agency.

(5) The license shall require the licensee to carry out the plan for development or marketing of the invention, or both, to bring the invention to practical application within a period specified in the license, and to continue to make the benefits of the invention reasonably accessible to the public.

(6) The license shall require the licensee to report periodically on the utilization or efforts at obtaining utilization that are being made by the licensee, with particular reference to the plan submitted.

(7) Licenses may be royalty–free or for royalties or other consid–eration.

(8) Where an agreement is obtained pursuant to Sec.404.5(a) (2) that any products embodying the invention or produced through use of the invention will be manufactured substantially in the United States, the license shall recite such agreement.

(9) The license shall provide for the right of the Federal agency to terminate the license, in whole or in part, if:

(i) The Federal agency determines that the licensee is not executing the plan submitted with its request for a license and the licensee cannot otherwise demonstrate to the satisfaction of the Federal agency that it has taken or can be expected to take within a reasonable time effective steps to achieve practical application of the invention;

(ii) The Federal agency determines that such action is necessary to meet requirements for public use specified by Federal regulations issued after the date of the license and such requirements are not reasonably satisfied by the licensee;

(iii)The licensee has willfully made a false statement of or willfully omitted a material fact in the license application or in any report required by the license agreement; or

(iv) The licensee commits a substantial breach of a covenant or agreement contained in the license.

(10) The license may be modified or terminated, consistent with this part, upon mutual agreement of the Federal agency and the licensee.

(11) Nothing relating to the grant of a license, nor the grant itself, shall be construed to confer upon any person any immunity from or defenses under the antitrust laws or from a charge of patent misuse, and the acquisition and use of rights pursuant to this part shall not be immunized from the operation of state or Federal law by reason of the source of the grant.

Sec. 404.6 Nonexclusive licenses.

(a) Nonexclusive licenses may be granted under federally owned inventions without publication of availability or notice of a prospective license.

(b) In addition to the provisions of Sec. 404.5, the nonexclusive license may also provide that, after termination of a period specified in the license agreement, the Federal agency may restrict the license to the fields of use or geographic areas, or both, in which the licensee has brought the invention to practical application and continues to make the benefits of the invention reasonably accessible to the public. However, such restriction shall be made only in order to grant an exclusive or partially exclusive license in accordance with this subpart.

Sec. 404.7 Exclusive and partially exclusive licenses.

(a) (1) Exclusive or partially exclusive domestic licenses may be granted on federally owned inventions three months after notice of the invention's availability has been announced in the Federal Register, or without such notice where the Federal agency determines that expeditious granting of such a license will best serve the interest of the Federal Government and the public; and in either situation, only if;

(i) Notice of a prospective license, identifying the invention and the prospective licensee, has been published in the Federal Register, providing opportunity for filing written objections within a 60–day period;

(ii) After expiration of the period in Sec. 404.7(a)(1)(i) and consideration of any written objections received during the period, the Federal agency has determined that;

(A)The interests of the Federal Government and the public will best be served by the proposed license, in view of the applicant's intentions, plans, and ability to bring the invention to practical application or otherwise promote the invention's utilization by the public;

(B) The desired practical application has not been achieved, or is not likely expeditiously to be achieved, under any nonexclusive license which has been granted, or which may be granted, on the invention;

(C) Exclusive or partially exclusive licensing is a reasonable and necessary incentive to call forth the investment of risk capital and expenditures to bring the invention to practical application or otherwise promote the invention's utilization by the public; and

(D)The proposed terms and scope of exclusivity are not greater than reasonably necessary to provide the incentive for bringing the invention to practical application or otherwise promote the invention's utilization by the public;

(iii)The Federal agency has not determined that the grant of such license will tend substantially to lessen competition or result in undue concentration in any section of the country in any line of commerce to which the technology to be licensed relates, or to create or maintain other situations inconsistent with the antitrust laws; and

(iv)The Federal agency has given first preference to any small business firms submitting plans that are determined by the agency to be within the capabilities of the firms and as equally likely, if executed, to bring the invention to practical application as any plans submitted by applicants that are not small business firms.

(2) In addition to the provisions of Sec. 404.5, the following terms and conditions apply to domestic exclusive and partially exclusive licenses;

(i) The license shall be subject to the irrevocable, royalty–free right of the Government of the United States to practice and have practiced the invention on behalf of the United States and on behalf of any foreign government or international organization pursuant to any existing or future treaty or agreement with the United States.

(ii) The license shall reserve to the Federal agency the right to require the licensee to grant sublicenses to responsible applicants, on reasonable terms, when necessary to fulfill health or safety needs.

(iii)The license shall be subject to any licenses in force at the time of the grant of the exclusive or partially exclusive license.

(iv)The license may grant the licensee the right of enforcement of the licensed patent pursuant to the provisions of Chapter 29 of Title 35, United States Code, or other statutes, as determined appropriate in the public interest.

(b) (1) Exclusive or partially exclusive licenses may be granted on a federally owned invention covered by a foreign patent, patent application, or other form of protection, provided that;

(i) Notice of a prospective license, identifying the invention and prospective licensee, has been published in the Federal Register, providing opportunity for filing written objections within a 60–day period and following consideration of such objections;

(ii) The agency has considered whether the interests of the Federal Government or United States industry in foreign commerce will be enhanced; and

(iii)The Federal agency has not determined that the grant of such license will tend substantially to lessen competition or result in undue concentration in any section of the United States in any line of commerce to which the technology to be licensed relates, or to create or maintain other situations inconsistent with antitrust laws.

(2) In addition to the provisions of Sec. 404.5 the following terms and conditions apply to foreign exclusive and partially exclusive licenses:

(i) The license shall be subject to the irrevocable, royalty–free right of the Government of the United States to practice and have practiced the invention on behalf of the United States and on behalf of any foreign government or international organization pursuant to any existing or future treaty or agreement with the United States.

(ii) The license shall be subject to any licenses in force at the time of the grant of the exclusive or partially exclusive license.

(iii)The license may grant the licensee the right to take any suitable and necessary actions to protect the licensed property, on behalf of the Federal Government.

(c) Federal agencies shall maintain a record of determinations to grant exclusive or partially exclusive licenses.

Sec. 404.8 Application for a license.

An application for a license should be addressed to the Federal agency having custody of the invention and shall normally include:

(a) Identification of the invention for which the license is desired including the patent application serial number or patent number, title, and date, if known;

(b) Identification of the type of license for which the application is submitted;

(c) Name and address of the person, company, or organization applying for the license and the citizenship or place of incorporation of the applicant;

(d) Name, address, and telephone number of the representative of the applicant to whom correspondence should be sent;

(e) Nature and type of applicant's business, identifying products or services which the applicant has successfully commercialized, and approximate number of applicant's employees;

(f) Source of information concerning the availability of a license on the invention;

(g) A statement indicating whether the applicant is a small business firm as defined in Sec.404.3(c)

(h) A detailed description of applicant's plan for development or marketing of the invention, or both, which should include:

(1) A statement of the time, nature and amount of anticipated investment of capital and other resources which applicant believes will be required to bring the invention to practical application;

(2) A statement as to applicant's capability and intention to fulfill the plan, including information regarding manufacturing, marketing, financial, and technical resources;

(3) A statement of the fields of use for which applicant intends to practice the invention; and

(4) A statement of the geographic areas in which applicant intends to manufacture any products embodying the invention and geographic areas where applicant intends to use or sell the invention, or both;

(i) Identification of licenses previously granted to applicant under federally owned inventions;

(j) A statement containing applicant's best knowledge of the extent to which the invention is being practiced by private industry or Government, or both, or is otherwise available commercially; and

(k) Any other information which applicant believes will support a determination to grant the license to applicant.

Sec. 404.9 Notice to Attorney General.

A copy of the notice provided for in Sec. 404.7(a)(1)(i) and (b)(1)(i) will be sent to the Attorney General.

Sec. 404.10 Modification and termination of licenses.

Before modifying or terminating a license, other than by mutual agreement, the Federal agency shall furnish the licensee and any sublicensee of record a written notice of intention to modify or terminate the license, and the licensee and any sublicensee shall be allowed 30 days after such notice to remedy any breach of the license or show cause why the license shall not be modified or terminated.

Sec. 404.11 Appeals.

In accordance with procedures prescribed by the Federal agency, the following parties may appeal to the agency head or designee any decision or determination concerning the grant, denial, interpretation, modification, or termination of a license:

(a) A person whose application for a license has been denied.

(b) A licensee whose license has been modified or terminated, in whole or in part; or

(c) A person who timely filed a written objection in response to the notice required by Sec. 404.7(a)(1)(i) or Sec. 404.7(b)(1)(i) and who can demonstrate to the satisfaction of the Federal agency that such person may be damaged by the agency action.

Sec. 404.12 Protection and administration of inventions.

A Federal agency may take any suitable and necessary steps to protect and administer rights to federally owner inventions, either directly or through contract.

Sec. 404.13 Transfer of custody.

A Federal agency having custody of a federally owned invention may transfer custody and administration, in whole or in part, to another Federal agency, of the right, title, or interest in such invention.

Sec. 404.14 Confidentiality of information.

Title 35, United States Code, section 209, provides that any plan submitted pursuant to Sec. 404.8 (h) and any report required by Sec. 404.5(b)(6) may be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and not subject to disclosure under section 552 of Title 5 of the United States Code.

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